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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,380

11/28/2003

Eun-Pyo Kim

17290

9653

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09/08/2006

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EXAMINER

SMITH, NICHOLAS A

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/724,380

Applicant(s)

KIM ET AL.

Examiner

Nicholas A. Smith

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/9/2006 has been entered.

### **Status of Claims**

Claims 7-12 are new and ready for examination. Claims 1-6 have been cancelled.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorfman et al. (US Patent 6,103,392).

In regards to claim 7-12, Dorfman et al. discloses the invention substantially as claimed. Dorfman et al. discloses preparing a W-Cu composite powder comprised of W and Cu powders using tungsten and copper oxides (col. 4, lines 41-53), compacting the W-Cu composite powder to the W-Cu composite material, densifying the W-Cu

Art Unit: 1742

composite material and sintering the W-Cu composite material using T parameters that substantially overlap those as claimed by Applicant (col. 13, lines 13-30). It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that the entire disclosed range has a suitable utility. Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP 2144.05.

However, Dorfman et al. does not specifically teach preparing a W-Cu composite powder by mixing  $\text{WO}_3/\text{WO}_{2.9}$  powder and  $\text{CuO}/\text{Cu}_2\text{O}$  as claimed.

Dorfman et al. does teach generally using tungsten and copper oxides as stock materials (col. 4, lines 41-53) and thus the scope of Dorfman et al. includes  $\text{WO}_3/\text{WO}_{2.9}$  powder and  $\text{CuO}/\text{Cu}_2\text{O}$  powder. In addition, Dorfman et al. does mention  $\text{WO}_{2.9}$  as an intermediate from tungsten oxide ( $\text{WO}_3$ ) to W in the reduction process (col. 8, lines 4-20). It would have been obvious to one of ordinary skill in the art to select a species, such as  $\text{WO}_3/\text{WO}_{2.9}$  powder or  $\text{CuO}/\text{Cu}_2\text{O}$  powder, from Dorfman et al.'s broader disclosure of using tungsten and copper oxides because prior art teaches using these general tungsten and copper oxides to form a composite oxide W-Cu powder (col. 4, lines 41-53). See MPEP 2144.08. In order to distinguish the claimed mixing  $\text{WO}_3/\text{WO}_{2.9}$  powder and  $\text{CuO}/\text{Cu}_2\text{O}$  powder from the prior art, applicant must show comparison data to show criticality of the claimed mixing powders.

However, Dorfman et al. does not specifically teach a second sintering step without an isothermal hold as claimed.

Art Unit: 1742

Dorfman et al. teaches sintering embodiments with isothermal holds (col. 13, lines 13-30). In addition, Dorfman et al. teaches general solid-state and liquid-state sintering methods (col. 3, lines 4-57), but does not limit sintering to processes with isothermal holds. Considering Dorfman et al. as a whole, Dorfman et al. does not limit sintering to processes with isothermal holds. It would have been obvious to one of ordinary skill in the art to select a time of sintering from Dorfman et al.'s broader disclosure of solid-state and liquid-state sintering in order to densify and form a rigid skeleton of the material (col. 3, lines 28-43). See MPEP 2144.08. In order to distinguish the claimed second sintering step without an isothermal hold from the prior art, applicant must show comparison data to show criticality of the claimed step in comparison with prior art's specified embodiment.

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jech et al. (US Patent 5,686,676).

In regards to claim 7-12, Jech et al. discloses the invention substantially as claimed. Jech et al. discloses preparing a W-Cu composite powder comprised of W and Cu powders using tungsten and copper oxides (claims 1, 2, 4 and 8), compacting the W-Cu composite powder to the W-Cu composite material, densifying the W-Cu composite material and sintering the W-Cu composite material using T parameters that substantially overlap those as claimed by Applicant (col. 9, lines 46-54). It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because

Art Unit: 1742

the prior art finds that the entire disclosed range has a suitable utility. Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP 2144.05.

However, Jech et al. does not specifically teach preparing a W-Cu composite powder by mixing  $WO_3/WO_{2.9}$  powder and  $CuO/Cu_2O$  as claimed.

Jech et al. does teach generally using tungsten and copper oxides as stock materials (claim 8) and thus the scope of Jech et al. includes  $WO_3/WO_{2.9}$  powder and  $CuO/Cu_2O$  powder. It would have been obvious to one of ordinary skill in the art to select a species, such as  $WO_3/WO_{2.9}$  powder or  $CuO/Cu_2O$  powder, from Jech et al.'s broader disclosure of using tungsten and copper oxides because prior art teaches using these general tungsten and copper oxides to form a composite oxide W-Cu powder (claim 1). See MPEP 2144.08. In order to distinguish the claimed mixing  $WO_3/WO_{2.9}$  powder and  $CuO/Cu_2O$  powder from the prior art, applicant must show comparison data to show criticality of the claimed mixing powders.

However, Jech et al. does not specifically teach a second sintering step without an isothermal hold as claimed.

Jech et al. teaches a sintering embodiment with isothermal holds (col. 9, lines 46-54). In addition, Jech et al. teaches general solid-state and liquid-state sintering methods (col. 9, lines 24-45), but does not limit sintering to processes with isothermal holds. Considering Jech et al. as a whole, Jech et al. does not limit sintering to processes with isothermal holds. It would have been obvious to one of ordinary skill in the art to select a time of sintering (process optimization) from Jech et al.'s broader disclosure of solid-state and liquid-state sintering in order to prepare a material that

Art Unit: 1742

have good properties of density, strength, fragility as well as no exuded copper in the material (col. 9, lines 36-45). See MPEP 2144.08. In order to distinguish the claimed second sintering step without an isothermal hold from the prior art, applicant must show comparison data to show criticality of the claimed step in comparison with prior art's specified embodiment.

### ***Response to Arguments***

Applicant's arguments filed 2/9/2006 have been fully considered but they are not persuasive.

Applicant argues:

Prior art does not teach a sintering step without an isothermal hold and does not teach the  $\text{WO}_3/\text{WO}_{2.9}$  powder and the  $\text{CuO}/\text{Cu}_2\text{O}$  powder as starting materials.

Examiner replies:

See reasons stated above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SUPERVISORY PATENT EXAMINER  
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